MINISTRY OF FORESTS

WOODLOT LICENCE MANAGEMENT PLAN HANDBOOK

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Introduction

Recent changes to Section 45(f) of the *Forest Act* allow the woodlot licence document to specify the information required in a woodlot licence management plan. In addition, changes to the woodlot licence document remove the requirement to submit a new management plan when a new forest development plan is submitted. Consequently, it is no longer required that management plans be automatically re-submitted every five years. In some cases, management plans may still have an expiry date, for example where the licensee is committed to completing an inventory, by a specified time, which will result in a re-determination of Allowable Annual Cut (AAC) for the licence. In other cases, the management plan will not have an expiry date and the district manager will decide when the submission of a revised management plan is necessary to revise the AAC.

This handbook should be reviewed before writing a first management plan, in the case of a new licensee or before writing a replacement management plan, in the case of established licensee. After reading this handbook, and the new woodlot licence agreement, licensees who are required to submit a management plan should meet with district woodlot licence staff to discuss what the plan must contain. As you read this handbook, you may wish to take notes and prepare questions in preparation for that meeting. Your district may also supply you with additional information that will assist you in developing the management plan.

Management Plan Content

Woodlot licence management plans will now focus on five main sections:

- Licensee Statement of Goals
- Licensee Commitments
- Resource Inventories
- Utilization Standards
- Allowable Annual Cut *

To follow is a brief description of what the plan should address for each of these sections:

* In strictly legal terms, the licensee proposes a "**harvest volume**" and the district manager determines an **allowable annual cut**. Since the term "allowable annual cut" is used extensively by licensees and the Forest Service in place of "harvest volume", this handbook will continue this practice to avoid confusing the reader.

Statement of Licensee Goals

The management plan should include brief statements regarding the licensee's management goals for the woodlot licence. For new licensees, this section can usually be lifted directly from the management intent section of the woodlot licence application. For existing licensees, your previous management plan should contain similar statements, which can be revised as appropriate to suit the current situation.

Licensee Commitments

For new licensees, statements made in your woodlot licence application may become commitments under your management plan. For existing licensees, commitments from past management plans will usually continue, unless they have been satisfied or changes in technology or circumstances render them inappropriate. For example, if your woodlot licence application, or previous management plan, stated that you would juvenile space ten hectares of Crown land within the licence area, this statement would be a documented commitment in the management plan until the spacing had been completed.

It is not necessary to include statements that are legislative requirements under the *Forest Act*, the *Forest Practices Code of British Columbia Act* or other legislation. It is important that the licensee and the ministry understand and agree on what commitments need to be included in the management plan. It is also important that the management plan clearly documents what will be done, where it will be done, how it will be done, when it will be done and who will pay for it.

Resource Inventories

The Crown portion of the woodlot licence will have some inventory information available. However, private land included in the application may or may not have inventory information. In some cases, applicants will have made a commitment in their application to upgrade the inventory information on the Crown land and/or private land portions of the woodlot licence. With new woodlot licences, the district manager will often require that inventories be completed or upgraded within the first five years of the woodlot licence.

Licensees may also elect to complete inventories on their own accord in preparation for re-calculating a proposed allowable annual cut for the licence area. New or updated inventory information, and a revised management plan proposing a different AAC, can be submitted to the district manger at any time.

Wherever inventories will be conducted on the licence area, the following should be discussed with the district manager:

- The type of inventory to be completed.
- The standards to be used for the inventory.
- The area that will be covered in the inventory.
- When the inventory will be completed.
- How the inventory information will be compiled and presented.

Utilization Standards for the Woodlot Licence

In some cases, a woodlot licensee may propose utilization standards that are different than those normally required in the district. Where this occurs, the woodlot licensee will be required to clearly state the utilization standards and formally commit to them in the management plan. If district utilization standards will be used, a statement to this effect should be made in the management plan and it is then not necessary to reiterate the district utilization standards in the management plan.

Proposed Allowable Annual Cut

All management plans must propose an allowable annual cut to be harvested from the woodlot licence area, which includes all Crown land (Schedule "B") and private land (Schedule "A"). The district manager (or regional manager as the case may be) will use this information in the determination of the AAC for the woodlot licence.

All information from both the Crown and private land portions of the woodlot licence should be analyzed using WOODLOT for Windows, the Ministry of Forests woodlot timber supply model, to estimate the sustainable harvest rate for the licence. A first run should be made to cover both Crown and private land. A second run should be undertaken with just the Schedule "B" or Schedule "A" portion of the woodlot licence (which ever is more appropriate) so that separate contributions to the allowable annual cut can be specified for Schedule "B" land and any Schedule "A" land. For Schedule "A" land to contribute to the AAC in the initial management plan, it must be sufficiently restocked with trees of a commercially valuable species.

Although an AAC will be determined for both the Schedule "A" and Schedule "B" portions of a woodlot licence, where there is a private land contribution, this does not mean that the AAC from Schedule "A" land must be exercised on private land and the Schedule "B" AAC must be exercised on Crown portions of the licence. For cut control purposes, there is only one AAC for the woodlot licence. Whether the AAC must be exercised on Crown or private portions of the licence is controlled by any statements in the management plan, the district manager's rationale when determining the AAC and the approval of subsequent forest development plans.

When proposing a new harvest rate for determination by the district manager, please include a summary of all information you analyzed, along with any assumptions and deviations that the district manager should consider.

To speed the issuance of the woodlot licence, new woodlot licensees may elect to adopt the allowable annual cut for the Crown portion of the woodlot licence that appeared in the licence advertisement and make some rough estimate of the AAC that will be provided by any Schedule "A" land that is stocked with commercially valuable trees. Established licensees that have a previously determined AAC based on good timber inventory and other information that is still accurate, can propose to maintain the current AAC without providing additional detail. At any time, a licensee may elect to propose a new AAC based on new or additional inventory or other information which was not considered in the initial AAC determination for the licence.

Refer to Appendix 1 for notes on the information needed to run WOODLOT for Windows. The model and reference manual are available on the Internet at http://www.enfor.com. Questions should be directed to Resource Tenures and Engineering Branch. Contact: Dave Haley, Woodlot Licence Forester at (250) 387-8317. Support may also be available from the developer, ENFOR Consultants Ltd. depending on funding.

Submission of Management Plans

As mentioned in the introduction, to ensure that management plans are approved in a reasonable time frame and extensive revisions are not required, it is critical that the licensee and the district woodlot licence staff understand clearly what will be included in the management plan. It is strongly suggested that licensees meet with district woodlot licence staff before beginning the preparation of a first management plan or a revised plan.

For new woodlot licences, management plans must be submitted by the deadline imposed by the district manager, which is usually six months following the award of the licence. It should be noted that a district manager has the right to rescind an award if a management plan is not submitted by the deadline and there is, in the opinion of the district manager, no valid reason for the delay in submission.

Management plans do not require the signature or seal of a registered professional forester.

Unlike forest development plans, there is no legislated requirement for management plans to be advertised, reviewed by the public or referred to other resource agencies or Native bands. In special circumstances, the district manager may require the licensee to refer of a woodlot licence management plan to resource agencies, Native bands or other interested parties.

APPENDIX 1

Using WOODLOT for Windows to Calculate a Harvest Rate

WOODLOT for Windows is a timber supply model used as a tool for calculating sustainable harvest rates on woodlot licences. It is important to note, however, that the *WOODLOT* model is only a tool. District managers have the final say in determining an AAC, and in so doing, they must consider many factors in addition to the model inputs. Consequently, a district manger may not agree with the harvest rate proposed and will give their rationale for their decision in their determination.

The model requires three main types of information: existing inventory and silviculture data, future management and silviculture assumptions, and resource constraints as follows:

Current Inventory and Silviculture Data

Current inventory and silviculture data are required to estimate the growth potential from your existing forest. The model requires timber inventory and some silviculture information for all forest polygons in your licence area. Most of this information is available from forest cover maps or the forest district office.

You will need the following information for each Polygon:

- Polygon number (= map sheet and polygon number for tracking in the model).
- Net area (= operable area that will grow commercially valuable trees).
- Current stand age.
- Ownership by polygon (e.g. Crown, private, etc.).
- Current type of forest, whether it is a natural stand or a managed stand.
- Yield information for naturally occurring or managed stands.
- For naturally occurring stands, this includes:
    - Site index.
    - Crown closure at harvest (approximate).
    - Volume adjustment factor if any is used (leave as 1.0 if you do not know).
    - Stocking class at harvest.

- Forest inventory zone (for zonal decay factors).
- Public sustained yield unit (local non-recoverable inventory level waste and breakage factors).
- Species by percent.

- For managed stands this includes:
  - Initial stocking density at establishment.
  - Method of establishment (natural vs. planted).
  - Site index.
  - Forest inventory zone (for zonal decay factors).
  - Percent by species.
  - Thinning if any (regime which has occurred and density thinned to).
  - Operational adjustment factors (use defaults if you do not know).

Future Management and Silviculture Assumptions

Future management assumptions are required to determine how your forest will be managed, grow and be harvested over time. These include:

- Regeneration delay (clearcut stands only).
- Utilization level (inventory utilization for trees at dbh).
- Silviculture system (clearcut vs. partial cut).

Note: Depending on whether clearcutting or partial cutting is indicated, the following information must be used or must be provided:

Clearcutting (Based on natural or managed yield information.)	**Partial Cutting (Based only on natural yield information.)**
Model will assume 100 percent removal on each entry.	Percentage of volume to be removed in first entry.
Model will assume re-entry at the harvest age selected.	Minimum re-entry period in years (to determine the extent of ingrowth).
Use yield information for natural stands or for managed stands.	Use yield information for natural stands ***only***.

- Harvest age.
- Minimum harvesting parameters.
- Yield information for stands that will be managed like naturally occurring and managed stands:
    - Use natural stand information (VDYP) for managing deciduous stands or any coniferous stands that you propose to manage like a naturally occurring forest (i.e. naturally regenerated stands that will not receive tending or partial cut areas).
    - Use managed stand information (TIPSY) for clearcut areas that will be regenerated to conifers and naturally regenerated conifer stands that have received or will receive tending.

Notes on Silviculture and Operational Adjustment Factors:

1. Silviculture

The silviculture assumptions used in WOODLOT will have an effect on the calculated harvest rate. Silviculture assumptions that are used to calculate the harvest rate must be based on the current level of silviculture practice that is being achieved on the woodlot licence. If, for example, the stocking at regeneration date is different than the initial establishment stocking that is used in WOODLOT, then the district manager may adjust the AAC accordingly. Adjustments to the AAC as a result of species conversion should be based on proven practice on the licence area.

2. Operational Adjustment Factors for Managed Stands

The Operational Adjustment Factor (OAF) No. 1 is designed to reduce managed stand yield projections to reflect small holes in operationally regenerated areas that were not present in the completely stocked research plots that provide the yield estimates. If silviculture performance is not producing fully stocked stands at regeneration and free growing dates that are comparable to the initial establishment stocking used in the *WOODLOT* model, then OAF No. 1 should be increased. Operational Adjustment Factor No. 2 should be adjusted if necessary to reflect any special forest health concerns that will impact managed stands. The default value represents a stand with no serious forest health concerns.

Resource Management Constraints

Resource management constraints may apply to your woodlot licence, and can be accounted for either by netting areas out first, or by applying factors to allow for some removal over time, including:

- eight and/or age constraints to be applied against the whole woodlot, such as for visual quality or wildlife management;
- equivalent area netdowns where height and age constraints cannot be determined.

Net (Operable)Area

You need to identify the net area that will be available for harvest, referred to as the "net operable area". To derive the net operable area, you will need to look at the entire woodlot licence and then remove areas that will not be managed for timber production over time. This normally is done as follows.

1. Determine the total area of the woodlot licence (gross area).
2. Reduce the total area for areas not managed for timber production:
    - Non-productive areas.
    - Roads, landings and gravel pits.
    - Unstable terrain.
    - Riparian reserves.
    - Land withdrawals due to higher level plans and land and resource management plans.
    - Archaeological features.
    - Recreation reserve areas.
    - Range management and cultivated areas.
    - Reserves for biodiversity and wildlife.
    - Water resource needs.
    - Other land withdrawals.

- Other management objectives on areas that will not permit production of commercial timber for future harvest.

Where any of the above items can or will be managed by partial cutting over the rotation, consider using a resource constraint, or using the partial cut features of the model to account for the contribution to timber supplies.

The following section describes areas that may exclude part of the licence area, or portions of stands, from harvest:

Non-Productive Areas

Mappable (greater than 0.25 hectare) non-productive areas such as wetlands or rock outcrops should be removed from the total operable area.

Roads, Landings and Gravel Pits

An allowance must be deducted from the total operable licence area for permanent roads (existing or planned) and any area occupied by permanent landings or gravel pits. The total area of roads (in hectares) can be calculated by determining the total length of road (in metres) in the polygon (or total licence area) multiplied by the average width of the road that will be removed from timber production (in metres) divided by 10,000.

Unstable Terrain

Remove areas where harvesting is prohibited or where restrictions have been placed on clearcutting due to a high likelihood of landslides. A terrain stability field assessment (TSFA) to determine the likelihood of landslides must almost always be done prior to harvesting on "sensitive slopes" (see Section 59 of the Woodlot Licence Forest Management Regulation).

"Sensitive Slopes" are defined in Section 1 of the Woodlot Licence Forest Management Regulation as the following areas:

(a) areas mapped on terrain stability hazard maps as having a moderate or high likelihood of landslides;

(b) if no terrain stability hazard mapping has been done, areas identified on reconnaissance terrain stability maps as having unstable or potentially unstable terrain;

(c) if no terrain stability hazard mapping or reconnaissance terrain stability mapping has been carried out, areas with slope gradients greater than 60 percent;

(d) areas with indicators of potential slope instability as defined in the Hazard Assessment Keys for Evaluating Site Sensitivity to Soil Degrading Processes Guidebook;

(e) other areas identified by the district manager as having unstable or potentially unstable terrain.

In addition to "sensitive slopes", there may be gullies within coastal woodlot licences that require gully assessments in accordance with Section 64 of the Woodlot Licence Forest Management Regulation. If sensitive slopes or coastal gullies are present, the terrain stability field assessment or gully assessment may result in the area not being available for harvesting or a requirement for partial cutting. Based on the TSFA, the restrictions on harvesting are different for areas inside or outside of community watersheds:

- Absolutely no harvesting is allowed on areas where the TSFA indicates a high likelihood of landslides within a community watershed.
- Clearcutting is almost never allowed on areas where the TSFA indicates a moderate likelihood of landslides within a community watershed.
- Clearcutting is almost never allowed on areas where the TSFA indicates a high likelihood of landslides outside of community watersheds

Since TSFA's and coastal gully assessments are not required for the management plan, assumptions will have to be made about removing areas from the net operable area or providing that clearcutting will not be possible on certain areas. If the woodlot licence area contains no sensitive slopes or coastal gullies, then a simple statement that this is not a consideration is all that is required. If sensitive slopes or coastal gullies are present, then assumptions on how these will be managed must be stated in the rationale for the proposed AAC.

Riparian Reserves and Riparian Management Zones

Riparian reserve zones are excluded from harvesting unless special authorization is granted. Harvesting may be possible in riparian management zones.

Part 7 of the Woodlot Licence Forest Management Regulation identifies that streams, wetlands and lakes with the indicated riparian class require the following basic riparian reserves zone widths:

Streams

Riparian Class	Riparian Reserve Zone Width	Riparian Management Zone
S1	50 metres	20
S2	30 metres	20
S3	20 metres	20
S4	0	30
S5	0	30
S6	0	20

Wetlands

Riparian Class	Riparian Reserve Zone Width	Riparian Management Zone
W1	10 metres	40 metres
W2	10 metres	20 metres
W3	0	30 metres
W4	0	30 metres
W5	**10 metres**	**40 metres**

Lakes

Riparian Class	Riparian Reserve Zone Width	Riparian Management Zone
L1	10 metres *	determined by DM
L2	10 metres	20 metres
L3	0	30 metres
L4	0	30 metres

* Or a width determined by the district manager.

The riparian class of each stream should be based on the best information available. The determination of the riparian class of streams should be based on the definition of "fish stream" in the Woodlot Licence Forest Management Regulation (except in community watersheds where this is not a consideration). In the absence of fish inventories to verify the absence of fish, the definition of fish stream would conclude that a stream reach with a gradient less than 20 percent, without barriers to fish migration, contains fish. If the riparian class of all streams on forest cover or TRIM maps for the woodlot licence is not known at the time the management plan is being prepared, make some logical assumptions without requiring fish inventories.

The riparian reserve zones for wetlands should be based on the size of the wetland from the forest cover or TRIM maps and the biogeoclimatic subzone. The riparian reserve zone width for an L1 lakes may be altered from the standard 10 metres by the district manager.

The licensee may increase the width of a riparian reserve zone to provide an additional reserve for stand level biodiversity. Riparian reserve zones should be removed from the net operable area when proposing an AAC. In addition to the riparian reserve zones, assumptions need to be stated to account for timber that may be excluded from harvesting in riparian management zones. For example, a percentage of the volume within riparian management zones may be excluded from harvesting.

Riparian management zones that will not be clearcut can be modeled for partial cutting in WOODLOT.

Higher Level Plans and Land and Resource Management Plans

Section 1 of the *Forest Practices Code of British Columbia Act* states that a higher level plan means an objective (a) for a management zone, (b) for a landscape unit or sensitive area, and (c) for a recreation site, recreation trail or interpretive forest site. The processes for establishing resource management zones, landscape units and sensitive areas are described in Sections 3,4 and 5 of the *Forest Practices Code of British Columbia Act.*

Higher level plans or land resource management plans that may restrict harvesting for the protection of things such as:

- visual quality objectives;
- sensitive areas; and
- recreation sites or trails or interpretive forest sites.

The district office will tell you which higher level plan or land resource management plans, if any, covet you licence areas and how they will affect harvesting.

Note that the objectives of these plans usually allow areas to be harvested periodically over time, and can be modeled in WOODLOT by using partial cutting, or by applying management constraints if they cover the whole woodlot.

Archaeological Features

If an archaeological overview assessment has identified areas that require archaeological impact assessments or if required archaeological impact assessments have been carried out, assumptions must be made on the effect that cultural heritage resources will have on the determination of the AAC. If reserve areas must be established or timber volumes must be excluded from harvesting to protect cultural heritage resources, the effect on the AAC should be modeled. If the archaeological overview assessment did not identify any areas of significance then this should be stated.

Recreation Management

Identify any recreation management initiatives will have an impact on the AAC. Also identify, and exclude from the net operable area, any areas within the woodlot licence that are being permanently excluded from harvesting due to the establishment of a recreation site or trail.

Range Management and Cultivated Areas

If there are any range developments (structures, excavations or constructed livestock trails) which will exclude harvesting, remove the net area from the operable licence area. Any areas within a polygon that are cultivated, should be removed from the net operable area until such time as trees of a commercially valuable species are established on the area.

Biodiversity and Wildlife Management

In many districts, the Ministry of Environment, Lands and Parks are requiring that a certain percentage of the woodlot licence area be excluded from harvest for stand level biodiversity. There are two basic approaches that are being taken. The first approach is to identify and map the desired percentage of the area as wildlife tree patches to be excluded from harvesting. These areas should be removed from the net operable land base when the AAC is proposed. The second method is to make a percentage reduction to the AAC and propose wildlife tree patches or other reserve areas, with each proposed cut block, to ensure that the percentage is met. In other situations, rather than excluding area for wildlife tree patches from the net operable, these areas are modeled on an extended rotation. The approach that is taken and the effect on the AAC should be described.

If identified wildlife, general wildlife measures, ungulate winter range or old-growth management areas are a consideration, the effect on AAC should be discussed.

Water Resources

Section 36 of the Woodlot Licence Forest Management Regulation places restrictions on the cutting of trees within 100 metres upslope from a community water supply intake. Harvesting operations must also be carried out in a manner that protects community and domestic water supply infrastructures. Identify any areas excluded from harvesting due to protection of water intakes and related water supply infrastructures.

It should be noted that woodlot licensees are not required to complete a watershed assessment. Licensees may, however, be required to contribute information to a watershed assessment that is being conducted by the major tenure holders or the Small Business Forest Enterprise Program. If a watershed assessment is completed for an area that includes the woodlot licence, restrictions on harvesting may be required as a result of the watershed assessment. These restrictions should be modeled using WOODLOT and reflected in the proposed AAC.

Management Objectives

Discuss whether management objectives will impact on the net operable area. For example, if areas are currently growing mixed deciduous/coniferous stands, and the deciduous will not be harvested, the timber yield from the areas should be reduced through the exclusion of the deciduous species from the calculation or through the use of an appropriate volume adjustment factor. Pure deciduous stands that will not be utilized should be excluded from the net operable area.

Identify where and how management decisions to employ partial cutting silvicultural systems will have an impact on AAC.

Maps

The district manager may require information to be presented on a map with the management plan.